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SOIL SURVEY INTERPRETATIONS FOR WOODLANDS
IN THE

SOUTHERN PIEDMONT AREA

OF

ALABAMA, GEORGIA, NORTH CAROLINA, AND SOUTH CAROLINA

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PROGRESS REPORT W-13 -- SEPTEMBER 1969

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Fort Worth, Texas

This report contains interpretations of soil surveys for woodland use and management in the Southern Piedmont Area of Alabama, Georgia, North Carolina, and South Carolina. The purpose is to provide currently available knowledge about soils as they relate to the establishment, growth, management, and harvesting of wood crops for the use of foresters, agricultural workers, woodland owners, and woodland managers. The information will be used by the Soil Conservation Service and cooperating agencies in the development of technical guides, soil handbooks, and published soil survey reports.

Field information was gathered by teams of foresters and soil scientists. Representatives of Federal and State agencies, the woodusing industry, and others cooperated in gathering field data. The interpretations presented herein are made for use with soil surveys.

Table 2, SOIL RATINGS FOR WOODLAND USE, includes some evaluations for individual soils. The soil series listed in column one (1) are those defined according to the current soil classification system and includes portions of soil associations mapped in low intensity surveys. Erosion and texture phases, within a soil series, are not shown except where differences in productivity, species suitability, or management problems exist.

Column two (2) includes a list of some of the commercially-important tree species which are adapted to the soil in column one. These are the tree species which woodland managers generally favor in intermediate or improvement cuttings, after considering the form and vigor of individual trees. Priority between species will be influenced by local marketability and the owners' objectives, as well as the quality of wood products from a given species.

Column three (3) indicates the average site index for the most important species listed in column two. The standard deviation is shown as a plus or minus figure (+) for each species where five or more plots were taken on the soils listed in column one. The site index curves used for each tree species are shown in Table 1, GUIDE FOR WOODLAND SUITABILITY CLASSES. An asterisk (*) following the site index rating indicates the rating is an estimate based on the same species on a similar soil, or by comparison with another species on the same soil. Site index is the average height of dominant trees at age 30 for cottonwood, age 35 for sycamore, and age 50 for all other species.

Column four (4) indicates the range of site index of the most important tree species in column two. The range of site index values is dependent on soil physical conditions, aeration, and nutrient and moisture availability during the growing season.

Column five (5) evaluates the potential erosion hazard of the soil in woodland use following cutting operations, or where the soil is exposed along roads, trails, firebreaks, or log-yarding areas. A rating of slight indicates that problems of erosion control are unimportant. A rating of moderate indicates some attention must be given to prevent unnecessary soil erosion. A rating of severe indicates that intensive treatments, or special equipment and methods of operation should be planned to minimize soil erosion. The potential erosion hazard is based on slope, soil depth, and erodibility, and soil loss tolerance.

Column six (6) includes evaluation of equipment restrictions. Ratings reflect limitations in the use of equipment for managing or harvesting the tree crop. A rating of slight indicates equipment use is seldom limited in

kind or time of year. A rating of moderate indicates a need for modified equipment or seasonal restrictions due to slope, stones, obstructions, soil wetness, flooding, or overflows. A rating of severe indicates the need for specialized equipment due to one or more of the factors listed above.

Column seven (7) indicates the degree of expected seedling mortality during the first two growing seasons after planting or seeding. Normal rainfall, adequate site preparation, good planting stock, proper planting methods, and appropriate protection and cultivation are assumed. A rating of slight indicates that unsatisfactory survival on less than 25 percent of the area is likely. A rating of moderate indicates that unsatisfactory survival is likely on 25 to 50 percent of the area planted. A rating of severe indicates that unsatisfactory survival is likely on more than 50 percent of the area.

Column eight (8) lists several suitable tree species for planting on the soil named in column one. The list may include some species which do not normally occur in native stands on the designated soil or in this physiographic area, as well as some of the important species listed in column two.

Column nine (9) shows the ordination of the soils into a woodland suitability group. A woodland suitability group is made up of kinds of soils that are capable of producing similar kinds of wood crops, that need similar management to produce these crops, and that have about the same potential productivity. The ordination system and the suitability group symbols are explained in the following paragraphs.

The first element of the group symbol indicates the woodland

suitability class. It expresses site quality by an arabic numeral ranging from 1 to 5, with class 1 the highest in potential productivity, followed by class 2, 3, 4, and 5. It is based on the average site index of one or more indicator forest types or tree species, as shown in Table 1, GUIDE FOR WOODLAND SUITABILITY CLASSES. The indicator species are underscored in column two of Table 2.

The second element in the symbol indicates the suitability subclass. It expresses selected soil properties that cause moderate to severe hazards or limitations in woodland use or management, by one of the following lower case arabic letters:

Subclass x (stoniness or rockiness). Soils having restrictions or limitations for woodland use or management due to stones or rocks.

Subclass w (excessive wetness). Soils in which excessive water, either seasonally or year long, causes significant limitations for woodland use or management. These soils have restricted drainage, high water tables, or overflow hazards which adversely affect either stand development or management.

Subclass d (restricted rooting depth). Soils with restrictions or limitations for woodland use or management due to restricted rooting depths. Soils shallow to hard rock, hardpan, or other layers in the soil that restrict roots are examples.

Subclass c (clayey soils). Soils having restrictions or limitations for woodland use or management due to the kind or amount of clay in the upper portion of the soil profile.

Subclass s (sandy soils). Sandy soils with little or no textural B horizons and having moderate to severe restrictions or limitations for

woodland use or management. These soils impose equipment limitations, have low moisture-holding capacity, and normally are low in available plant nutrients.

Subclass f (fragmental or skeletal soils). Soils with restrictions or limitations for woodland use or management due to large amounts of coarse fragments in the profile over 2 mm and less than 10 inches, but includes flaggy soils.

Subclass r (relief or slope steepness). Soils with restrictions or limitations for woodland use or management due to steepness of slope.

Subclass o (slight or no limitations). Soils with no significant restrictions or limitations for woodland use or management.

Some kinds of soil may have more than one set of subclass characteristics. Priority in placing each kind of soil into a subclass is in the order that the subclass characteristics are listed above.

The third element in the symbol indicates the degree of hazards or limitations, and the general suitability of the soils for certain kinds of trees. The three management problems considered here are: (1) erosion hazard, (2) equipment restrictions, and (3) seedling mortality.

The numeral 1 indicates soils with no to slight management problems, and they are best suited for needleleaf trees.

The numeral 2 indicates soils with one or more moderate management problems, and they are best suited for needleleaf trees.

The numeral 3 indicates soils with one or more severe management problems, and they are best suited for needleleaf trees.

The numeral 4 indicates soils with no to slight management problems, and they are best suited for broadleaf trees.

The numeral 5 indicates soils with one or more moderate management problems, and they are best suited for broadleaf trees.

The numeral 6 indicates soils with one or more severe management problems, and they are best suited for broadleaf trees.

The numeral 7 indicates soils with no to slight management problems, and they are suitable for either needleleaf or broadleaf trees.

The numeral 8 indicates soils with one or more moderate management problems, and they are suitable for either needleleaf or broadleaf trees.

The numeral 9 indicates soils with one or more severe management problems, and they are suitable for either needleleaf or broadleaf trees.

A fourth element, the letter "e" has been used to ordinate some severely eroded soils into separate subgroups.

TABLE 1 - GUIDE FOR WOODLAND SUITABILITY CLASSES
IN THE SOUTHERN PIEDMONT AREA

	: 1	: 2	: 3	: 4	: 5
Indicator Forest	: Very	: High	: Moderately	: Moderate	: Low
Type or Species	: High	: High	: High	: High	: High
	Site Index				
Cottonwood	(1): 106+	: 96-105	: 86-95	: 76-85	: 75-
Yellow-poplar	(2): 106+	: 96-105	: 86-95	: 76-85	: 75-
Sweetgum	(3): 96+	: 86-95	: 76-85	: 66-75	: 65-
Water oaks	(4): 96+	: 86-95	: 76-85	: 66-75	: 65-
Eastern white pine	(5): 96+	: 86-95	: 76-85	: 66-75	: 65-
Loblolly pine	(6): 96+	: 86-95	: 76-85	: 66-75	: 65-
Shortleaf pine	(6): 86+	: 76-85	: 66-75	: 56-65	: 55-
Upland oaks	(7): 86+	: 76-85	: 66-75	: 56-65	: 55-
Eastern redcedar	(8): 66+	: 56-65	: 46-55	: 35-45	: 35-
American sycamore	(9): 106+	: 96-105	: 86-95	: 76-85	: 75-

- (1) Broadfoot, W. M., 1960, Field Guide for Evaluating Cottonwood Sites, USFS Occ. Paper 178 (Fig. 4).
- (2) Doolittle, W. T., 1957, Site Index Curves for Yellow-poplar-Southern Appalachians.
- (3) Broadfoot, W. M., 1959, Guide for Evaluating Sweetgum Sites, USFS Occ. Paper 176 (Fig. 4).
- (4) Broadfoot, W. M., 1963, Guide for Evaluating Water Oak Sites in the Mid-South, USFS Res. Paper SO-1 (Fig. 4).
- (5) Doolittle, W. T., 1960, Site Index Curves for Eastern White Pine in the Southern Appalachians, SE For. Expmt. Sta. Res. Note 141.
- (6) Coile, T. S. and F. X. Schumacher, Jour. For. 53:432-435 (Fig. 4 and 8).
- (7) Olson, D. G., 1959, Site Curves for Upland Oaks in the Southern Appalachians, SE For. Expmt. Sta. Res. Note 125.
- (8) TVA 1948, Site Curves, Eastern Redcedar, Tennessee Valley.
- (9) Briscoe, C. B. and M. D. Ferrill, 1958, Forestry Note 19, Louisiana State University.

TABLE 2. SOIL RATINGS FOR WOODLAND USE

Southern Piedmont Area

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Soils	Potential Productivity			Management Problems			Species Suitable for Planting 2/	Ordination Woodland Suitability Group
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index 1/	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Alamence</u> 0-15% slopes	<u>Loblolly pine</u> Shortleaf pine Southern red oak White oak	77 66 69 71+6	71-86 61-70 58-80 64-79	Slight	Slight	Slight	Eastern redcedar Loblolly pine Slash pine Yellow-poplar	3o7
silty clay loam severely eroded, 2-15% slopes	<u>Loblolly pine</u>	(70)		Moderate	Moderate	Slight	Loblolly pine Virginia pine Slash pine	4c2e
<u>Altavista</u> 0-10% slopes	<u>Loblolly pine</u> Longleaf pine Shortleaf pine Sweetgum White oak Southern red oak	91+9 84 77 84 77 -	77-105 - - - - -	Slight	Moderate	Slight	Black walnut Loblolly pine Slash pine Sweetgum Sycamore Yellow-poplar Cherrybark oak Eastern white pine	2w8
<u>Appling</u> 0-15% slopes	Black oak Eastern white pine	70 80	- -	Slight	Slight	Slight	Eastern redcedar Eastern white pine	3o7
15-40% slopes	<u>Loblolly pine</u> Longleaf pine Shortleaf pine Scarlet oak Southern red oak Virginia pine White oak Yellow-poplar	81+7 71 65+6 68 76 74+7 71 90	58-96 - 52-76 - - 64-84 61-77 78-103	Moderate	Moderate	Slight	Loblolly pine Slash pine Yellow-poplar	3r8
sandy clay loam severely eroded 2-15% slopes	<u>Loblolly pine</u> Shortleaf pine	70 55	- -	Moderate	Moderate	Slight	Eastern redcedar Loblolly pine Slash pine Virginia pine	4c2e
15-40% slopes				Severe	Severe	Moderate		4c3e
<u>Augusta</u> 0-6% slopes	<u>Loblolly pine</u> Sweetgum Sycamore White oak Southern red oak	92 90 90 80 80	- - - - -	Slight	Moderate	Slight	Loblolly pine Slash pine Sweetgum Sycamore Yellow-poplar Cherrybark oak	2w8
<u>Bradley</u> 0-15% slopes	<u>Loblolly pine</u> Longleaf pine Sweetgum	82 56 92	- - -	Slight	Slight	Slight	Eastern redcedar Loblolly pine Longleaf pine Slash pine	3o7
<u>Buncombe</u> 0-6% slopes	<u>Cottonwood</u> Sycamore Black willow Sweetgum	100 90 - 90	- - - -	Slight	Moderate	Moderate	Eastern Cottonwood Loblolly pine Slash pine Sycamore	2s8
<u>Cartecay</u> 0-6% slopes	<u>Sweetgum</u> <u>Yellow-poplar</u> Loblolly pine	(90) (95)	- -	Slight	Moderate	Slight	Eastern cottonwood Loblolly pine Slash pine Sweetgum Sycamore Cherrybark oak Yellow-poplar	2w8

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1/ Site indexes in parenthesis are estimated.

2/ Slash pine is planted generally only in the lower Piedmont Area due to susceptibility to damages from ice and snow. White pine is generally planted only in the upper Piedmont.

* Site index at age 30.

** Site index at age 35.

TABLE 2. SOIL RATINGS FOR WOODLAND USE

Southern Piedmont Area

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Soils	Potential Productivity			Management Problems			Species Suitable for Planting	Ordination Woodland Suitability Group
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Cataula</u> 0-15% slopes	<u>Loblolly pine</u>	80	65-90	Slight	Slight	Slight	Loblolly pine	3o7
	Shortleaf pine	66+15	48-83				Virginia pine	
	Southern red oak	84+7	72-90				Yellow-poplar	
	Sweetgum	85	82-87	Moderate	Moderate	Slight		3r8
	White oak	81+5	77-89					
15-25% slopes	Yellow-poplar	88+8	77-98					
clay loam, severely eroded 0-25% slopes	<u>Loblolly pine</u>	65 & below	-	Moderate to Severe	Moderate to Severe	Moderate	Loblolly pine	5c3e
	Shortleaf pine	50 & below	-				Slash pine	
							Virginia pine	
							NOTE: Die out and little leaf disease are associated with these soils.	
<u>Cecil</u> 0-15% slopes	Eastern white pine	80	-	Slight	Slight	Slight	Eastern white pine	3o7
	<u>Loblolly pine</u>	80+8	63-95				Loblolly pine	
	Shortleaf pine	67+7	47-87				Slash pine	
	Virginia pine	73+4	67-79	Moderate	Moderate	Slight	Yellow-poplar	3r8
	Black oak	66	-					
15-30% slopes	Northern red oak	82+6	73-89					
	Post oak	65+9	52-73					
	Scarlet oak	80+3	76-84					
	Southern red oak	81+10	64-93					
	Sweetgum	78+6	71-87					
	White oak	76+7	65-87					
	Yellow-poplar	86+8	74-94					
clay loam, severely eroded 0-15% slopes	<u>Loblolly pine</u>	72+6	64-80	Moderate	Moderate	Moderate	Loblolly pine	4c2e
	Shortleaf pine	66+6	59-76				Slash pine	
15-30% slopes	Virginia pine	65	-				Virginia pine	
				Severe	Severe	Moderate		4c3e
<u>Chewacla</u> 0-6% slopes	American elm	90	-	Slight	Moderate	Moderate	Eastern cottonwood	1w8
	Cottonwood	100	90-110				Loblolly pine	
	Green ash	97	90-105				Slash pine	
	<u>Loblolly pine</u>	96+6	87-104				Sycamore	
	Red maple	70	-				Sweetgum	
	River birch	70*	-				Yellow-poplar	
	Scarlet oak	90	-				Cherrybark oak	
	Southern red oak	90	-				Eastern white pine	
	Sugarberry	80	-					
	Swamp blackgum	80	-					
	Sweetgum	97+13	74-133					
	Sycamore	90	-					
	Water oak	86+11	74-108					
	White ash	80	-					
	Willow oak	85	-					
	Yellow-poplar	104+8	93-116					
<u>Colfax</u> 0-15% slopes	<u>Loblolly pine</u>	80	-	Slight	Moderate	Slight	Loblolly pine	3w8
	Red maple	65	-				Slash pine	
	Shortleaf pine	70	-				Virginia pine	
	Sweetgum	81	71-93				Sweetgum	
	Yellow-poplar	80	63-97					
	Virginia pine							

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Soils	Potential Productivity			Management Problems			Species Suitable for Planting	Ordination Woodland Suitability Group
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Congaree</u> 0-6% slopea	Black cherry Black walnut Cherrybark oak Cottonwood Green ash Loblolly pine Shortleaf pine Scarlet oak Sugarberry Swamp white oak Sweetgum Sycamore Water oak** White oak Willow oak Yellow-poplar	90 100 107 107 95 90 75 100 80 85 100+9 89 88 85 95 107+11	- - 103-111 98-115 93-100 - - - - - 84-113 67-111 - - - - 95-120	Slight	Slight	Slight	Loblolly pine Slash pine Yellow-poplar Sycamore Black walnut Cherrybark oak Eastern cottonwood Sweetgum	1o7
<u>Creedmoor</u> 0-20% slopes	Loblolly pine Shortleaf pine Sweetgum Water oaks	84+7 55 - -	74-92 - - -	Slight	Moderate	Slight	Loblolly pine Sweetgum Yellow-poplar	3w8
<u>Davidson</u> 0-20% slopes	Loblolly pine Shortleaf pine Northern red oak Southern red oak Sweetgum White oak Yellow-poplar	81+7 68+10 86 72 80 71+9 91+10	67-90 51-84 78-91 68-76 - 64-86 78-105	Slight	Slight	Slight	Loblolly pine Slash pine Yellow-poplar	3o7
clay loam, severely eroded 0-20% slopes	Chestnut oak Loblolly pine Shortleaf pine Virginia pine White oak	70 75 68+7 70 65	- - 58-86 - -	Moderate	Moderate	Moderate	Loblolly pine Slash pine Virginia pine	4c2e
<u>Durham</u> 0-10% slopes	Loblolly pine Post oak Shortleaf pine Southern red oak Sweetgum White oak Yellow-poplar	79+11 70 72 80 80 70 80	66-95 - - - - - -	Slight	Slight	Slight	Loblolly pine Slash pine Yellow-poplar	3o7
<u>Enon</u> 0-15% slopes	Loblolly pine Shortleaf pine	73+7 63+7	61-84 57-72	Slight	Slight	Slight	Eastern redcedar Loblolly pine Slash pine	4o1
15-25% slopes	Virginia pine Post Oak Red maple Southern red oak Sweetgum White oak Yellow-poplar	63 55 70 84 78 69+8 88	- - - 70-92 76-82 58-80 84-95	Moderate	Moderate	Slight		4r2
clay loam, severely eroded 0-15% slopes	Loblolly pine Shortleaf pine Virginia pine	71+5 60 65	62-75 - -	Moderate	Moderate	Moderate	Eastern redcedar Loblolly pine Slash pine Virginia pine	4c2e
15-25% slopes				Severe	Severe	Moderate		4c3e

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Soils	Potential Productivity			Management Problems			Species Suitable for Planting	Ordination Woodland Suitability Group
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Georgeville</u> 0-15% slopes	<u>Loblolly pine</u>	81+8	70-90	Slight	Slight	Slight	Loblolly pine	3o7
-----	Longleaf pine	67	-	-----	-----	-----	Slash pine	-----
15-25% slopes	Scarlet oak	70	65-75	-----	-----	-----	Virginia pine	-----
-----	Shortleaf pine	63+5	54-69	Moderate	Moderate	Slight	Yellow-poplar	3r8
-----	Southern red oak	67	64-71	-----	-----	-----	-----	-----
-----	Sweetgum	67	62-73	-----	-----	-----	-----	-----
-----	White oak	69+7	61-80	-----	-----	-----	-----	-----
-----	Virginia pine	65	-	-----	-----	-----	-----	-----
silty clay loam severely eroded	<u>Loblolly pine</u>	70	-	Moderate	Moderate	Moderate	Loblolly pine	4c2e
0-15% slopes	Shortleaf pine	60	-	-----	-----	-----	Virginia pine	-----
-----	Virginia pine	60	-	-----	-----	-----	-----	-----
15-25% slopes	-----	-----	-----	Severe	Severe	Moderate	-----	4c3e
<u>Gills</u> 0-10% slopes	<u>Shortleaf pine</u>	43	41-46	Slight	Moderate	Slight	Eastern redcedar Loblolly pine Virginia pine	5w2
<u>Gist</u> 0-20% slopes	<u>Loblolly pine</u>	80	-	Slight	Slight	Slight	Loblolly pine	3o7
-----	Northern red oak	80	-	-----	-----	-----	Yellow-poplar	-----
-----	White oak	70	-	-----	-----	-----	-----	-----
sandy clay loam 2-20% slopes, severely eroded	<u>Loblolly pine</u>	70	-	Moderate	Moderate	Moderate	Virginia pine	4c2e
-----	Shortleaf pine	60	-	-----	-----	-----	Loblolly pine	-----
-----	Virginia pine	65	-	-----	-----	-----	-----	-----
<u>Goldston</u> 0-15% slopes	<u>Loblolly pine</u>	73+9	64-85	Slight	Slight	Slight	Eastern redcedar	4o1
-----	Longleaf pine	68	-	-----	-----	-----	Loblolly pine	-----
15-35% slopes	Shortleaf pine	63+7	55-75	Moderate	Moderate	Slight	Slash pine	4r2
-----	Southern red oak	66	-	-----	-----	-----	Virginia pine	-----
-----	White oak	69	-	-----	-----	-----	-----	-----
<u>Granville</u> 0-15% slopes	<u>Loblolly pine</u>	77	-	Slight	Slight	Slight	Loblolly pine	3o7
-----	Southern red oak	-	-	-----	-----	-----	Virginia pine	-----
-----	White oak	-	-	-----	-----	-----	Yellow-poplar	-----
<u>Grover</u> 0-15% slopes	Loblolly pine	(80)	-	Slight	Slight	Slight	Loblolly pine	3o7
-----	Southern red oak	-	-	-----	-----	-----	Slash pine	-----
-----	White oak	-	-	-----	-----	-----	Virginia pine	-----
15-40% slopes	-----	-----	-----	Moderate	Moderate	Slight	Yellow-poplar	3r8
<u>Gwinnett</u> 0-15% slopes	<u>Loblolly pine</u>	81+6	72-90	Slight	Slight	Slight	Loblolly pine	3o7
-----	Southern red oak	-	-	-----	-----	-----	Slash pine	-----
-----	White oak	-	-	-----	-----	-----	Virginia pine	-----
15-45% slopes	-----	-----	-----	Moderate	Moderate	Slight	Yellow-poplar	3r8
clay loam, 2-15% slopes severely eroded	<u>Loblolly pine</u>	75+7	62-86	Moderate	Moderate	Moderate	Eastern redcedar	4c2e
-----	Virginia pine	65	-	-----	-----	-----	Loblolly pine	-----
-----	Shortleaf pine	65	-	-----	-----	-----	Virginia pine	-----
15-45% slopes	-----	-----	-----	Severe	Severe	Moderate	-----	4c3e
<u>Helena</u> 0-25% slopes	<u>Loblolly pine</u>	80+14	65-100	Slight	Slight	Slight	Loblolly pine	3w8
-----	Shortleaf pine	63	58-68	to	to	-----	Slash pine	-----
-----	White oak	64	-	Moderate	Moderate	-----	Virginia pine	-----
-----	Yellow-poplar	87	-	-----	-----	-----	Yellow-poplar	-----

TABLE 2. SOIL RATINGS FOR WOODLAND USE

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Soils	Potential Productivity			Management Problems			Species Suitable for Planting	Ordination Woodland Suitability Group
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Herndon</u> 0-15% slopes	Black cherry <u>Loblolly pine</u> Post oak Shortleaf pine Southern red oak White oak Yellow-poplar	65 80+8 63 61+5 72 65+11 91	- 63-91 51-74 52-70 68-77 51-80 88-94	Slight	Slight	Slight	Loblolly pine Slash pine Virginia pine Yellow-poplar	3o7
<u>Hiwassee</u> 0-15% slopes	Loblolly pine Red oaks <u>Shortleaf pine</u> White oaks Yellow-poplar	75+6 (70) 70+7 (70) (85)	64-88 - 62-79 - -	Slight	Slight	Slight	Loblolly pine Slash pine Yellow-poplar	3o7
clay loam, severely eroded 2-15% slopes	<u>Loblolly pine</u> Shortleaf pine	(66) 61	- -	Moderate	Moderate	Moderate	Eastern redcedar Loblolly pine Slash pine Virginia pine	4c2e
<u>Hulett</u> 0-15% slopes	<u>Loblolly pine</u> Southern red oak White oak	(80) - -	- - -	Slight	Slight	Slight	Loblolly pine Yellow-poplar	3o7
clay loam, severely eroded, 2-15% slopes	<u>Loblolly pine</u> Virginia pine	(65) -	- -	Moderate	Moderate	Slight	Eastern redcedar Loblolly pine Virginia pine	4c2e
<u>Iredell</u> 0-12% slopes ----- stony	<u>Loblolly pine</u> Longleaf pine Post oak Shortleaf pine White oak	67+5 55 44 58+2 47	60-75 - - 55-60 -	Slight ----- Slight	Moderate ----- Moderate	Moderate ----- Moderate	Eastern redcedar Loblolly pine ----- -----	4c2 ----- 4x2
<u>Lockhart</u> 6-15% slopes ----- 15-25% slopes	<u>Loblolly pine</u> Southern red oak White oak Shortleaf pine	79 70 70 70	- - - -	Slight ----- Moderate	Slight ----- Moderate	Slight ----- Slight	Loblolly pine Slash pine Virginia pine Yellow-poplar	3o7 ----- 3r8
<u>Louisa</u> 0-15% slopes ----- 15-35% slopes	<u>Loblolly pine</u> Longleaf pine Shortleaf pine Southern red oak Yellow-poplar	72+10 67 67+7 77 89	62-82 - 60-75 - -	Slight ----- Moderate	Slight ----- Moderate	Slight ----- Slight	Eastern redcedar Loblolly pine ----- -----	4o1 ----- 4r2
<u>Louisburg</u> 0-15% slopes ----- 15-50% slopes ----- stony, 0-50% slopes	<u>Loblolly pine</u> Shortleaf pine Southern red oak Virginia pine White oak Yellow-poplar	77+5 69+10 72 71+3 68 84	70-85 60-80 - 65-75 - -	Slight ----- Moderate ----- Slight to Moderate	Slight ----- Moderate ----- Moderate to Severe	Slight ----- Slight ----- Slight	Loblolly pine Slash pine Virginia pine Yellow-poplar ----- Loblolly pine Virginia pine	3o7 ----- 3r8 ----- 3x3
<u>Madison</u> 0-15% slopes ----- 15-35% slopes	Loblolly pine Longleaf pine <u>Shortleaf pine</u> Southern red oak Yellow-poplar	73+8 63+5 66 81 96	62-81 56-70 60-72 76-86 -	Slight ----- Moderate	Slight ----- Moderate	Slight ----- Slight	Loblolly pine Longleaf pine Slash pine Yellow-poplar	3o7 ----- 3r8
clay loam, severely eroded, 2-15% slopes ----- 15-35% slopes	<u>Loblolly pine</u> Longleaf pine Shortleaf pine Virginia pine	72+6 (60) 66	65-80 - -	Moderate ----- Severe	Moderate ----- Severe	Moderate ----- Moderate	Eastern redcedar Loblolly pine Slash pine Virginia pine	4c2e ----- 4c3e

TABLE 2. SOIL RATINGS FOR WOODLAND USE

Southern Piedmont Area

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Soils	Potential Productivity			Management Problems			Species Suitable for Planting	Ordination Woodland Suitability Group
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Masada</u> 2-10% slopes	<u>Loblolly pine</u>	75	60-88	Slight	Slight	Slight	Loblolly pine Virginia pine Yellow-poplar	3o7
	Shortleaf pine	65	51-71					
	Sweetgum	78	-					
	White oak	73	-					
<u>Mayodan</u> 2-7% slopes	<u>Loblolly pine</u>	82	-	Slight	Slight	Slight	Loblolly pine Virginia pine Yellow-poplar	3o7
	Shortleaf pine	75	-					
	Yellow-poplar	79	-					
<u>Mechlenburg</u> 0-20% slopes	<u>Loblolly pine</u>	75	-	Slight	Slight	Slight	Eastern redcedar Loblolly pine Slash pine Virginia pine	4o1
	Shortleaf pine	67+7	60-77					
	Southern red oak	75	73-77					
	Sweetgum	82	70-93					
	White oak	71+5	65-78					
	Yellow-poplar	89	-					
clay loam, severely eroded 2-20% slopes	<u>Loblolly pine</u>	66	-	Moderate	Moderate	Moderate	Eastern redcedar Loblolly pine Slash pine Virginia pine	4c2e
	Shortleaf pine	59	57-61					
	Northern red oak	78	-					
<u>Molena</u> 0-20% slopes	<u>Loblolly pine</u>	(80)	-	Slight	Moderate	Moderate	Loblolly pine Slash pine	3s2
	Northern red oak	86	-					
	White oak	68	-					
<u>Musella</u> 6-20% slopes	<u>Loblolly pine</u>	80	-	Slight	Slight	Slight	Loblolly pine Yellow-poplar	3o7
	Virginia pine	75	-					
	Red oaks	70	-					
	Yellow-poplar	85	-					
20-45% slopes				Moderate	Moderate	Slight		3r8
gravelly, 6-60% slopes	<u>Loblolly pine</u>	72	-	Slight to Moderate	Slight to Moderate	Moderate to Severe	Loblolly pine Virginia pine	4f3
	Virginia pine	65	-					
<u>Nason</u> 0-15% slopes	Chestnut oak	58	57-59	Slight	Slight	Slight	Loblolly pine Virginia pine Yellow-poplar	3o7
	M. hickory	68	-					
	Northern red oak	75	-					
	Shortleaf pine	64	56-71					
	Scarlet oak	64	-					
	Southern red oak	70+7	61-80					
	Sweetgum	72	-					
	White oak	65+7	57-77					
	Winged elm	72	-					
	Yellow-poplar	84	-					
	Virginia pine	70+5	62-76					
<u>Pacolet</u> 0-15% slopes	Black oak	70	-	Slight	Slight	Slight	Eastern white pine Loblolly pine Virginia pine Northern red oak Yellow-poplar	3o7
	Eastern white pine	81	80-82					
	Northern red oak	79	76-82					
	Loblolly pine	72+7	60-77					
	Post oak	68	-					
	Scarlet oak	75	-					
	Shortleaf pine	70+9	56-90					
	Southern red oak	74+11	52-92					
	Sweetgum	82	60-114					
	Virginia pine	78+10	66-95					
	White oak	69+13	51-89					
	Yellow-poplar	86+14	65-114					
stony, 10-60% slopes	<u>Shortleaf pine</u>	70	-	Moderate to Severe	Moderate to Severe	Moderate	Loblolly pine Virginia pine	3x3
	Virginia pine	70	-					

TABLE 2. SOIL RATINGS FOR WOODLAND USE

Southern Piedmont Area

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Soils	Potential Productivity			Management Problems			Species Suitable for Planting	Ordination
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		Woodland Suitability Group
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Pacolet</u> (cont'd) clay loam, severely eroded 2-15% slopes ----- 15-40% slopes	<u>Loblolly pine</u> Shortleaf pine Southern red oak Virginia pine White oak	(72) (70) 60 68 67	- 57-89 - - 65-70	Slight ----- Moderate	Moderate ----- Severe	Moderate ----- Moderate	Eastern redcedar Loblolly pine Virginia pine -----	4c2e ----- 4c3e
<u>Roanoke</u> 0-2% slopes	<u>Loblolly pine</u> Red maple Sweetgum Water oak Willow oak Yellow-poplar	(86) 62 86 93 93 74	- - 71-97 91-95 - -	Slight 	Severe 	Moderate 	Green ash Loblolly pine Slash pine Sweetgum Sycamore	2w9
<u>Starr</u> 0-6% slopes	Eastern white pine <u>Loblolly pine</u> Shortleaf pine Southern red oak Virginia pine White oak Yellow-poplar	91 101+10 75+11 75 81 74 103+10	80-101 92-120 52-92 74-77 79-82 - 86-113	Slight 	Slight 	Slight 	Black walnut Eastern white pine Green ash Loblolly pine Sweetgum White ash Yellow-poplar Cherrybark oak	1o7
<u>State</u> 0-7% slopes	<u>Loblolly pine</u> Yellow-poplar	(96) 105	- -	Slight 	Slight 	Slight 	Black walnut Loblolly pine Sweetgum White ash Yellow-poplar Cherrybark oak	1o7
<u>Tallapoosa</u> 0-15% slopes ----- 15-45% slopes ----- 45-60% slopes	<u>Longleaf pine</u> Loblolly pine Virginia pine	65 70 65	51-74 - -	Slight ----- Moderate	Slight ----- Moderate	Slight ----- Slight	Loblolly pine Longleaf pine Virginia pine Slash pine ----- Eastern redcedar	4o1 ----- 4r2 ----- 4r3
<u>Tatum</u> 0-15% slopes ----- 15-45% slopes	Eastern white pine <u>Loblolly pine</u> Longleaf pine Shortleaf pine Scarlet oak Southern red oak Sweetgum Virginia pine White oak Yellow-poplar	85 70+8 63+6 66+8 63 79 51 71 65 80	- 50-88 55-73 52-85 - 72-88 - 65-78 52-77 72-88	Slight ----- Moderate 	Slight ----- Moderate 	Slight ----- Slight 	Loblolly pine Eastern redcedar Virginia pine Slash pine 	4o1 ----- 4r2
silty clay loam severely eroded 0-15% slopes ----- 15-45% slopes	<u>Loblolly pine</u> Shortleaf pine Southern red oak Virginia pine Yellow-poplar	66 60 82 69 68	- 59-78 - 68-70 -	Moderate ----- Severe	Moderate ----- Severe	Moderate ----- Severe	Eastern redcedar Loblolly pine Virginia pine Slash pine -----	4c2e ----- 4c3e
<u>Toccoa</u> 0-3% slopes	<u>Loblolly pine</u> <u>Yellow-poplar</u> Sweetgum Red oaks Green ash	90 107 100 - -	88-96 100-112 95-105 - -	Slight 	Slight 	Slight 	Loblolly pine Yellow-poplar Sycamore Cherrybark oak	1o7
<u>Vance</u> 0-20% slopes	<u>Loblolly pine</u> Northern red oak Shortleaf pine White oak	76+5 - - -	67-82 - - -	Slight 	Slight 	Slight 	Loblolly pine Virginia pine Slash pine Yellow-poplar	3o7

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Table 3, **SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY**, is a summary of the most important interpretations for a woodland suitability group of soils.

Column one (1) includes the suitability group symbol and a brief description of the group of soils, including their important hazards and limitations for woodland use and management.

Column two (2) is a tabulation of the soils within each woodland suitability group.

Column three (3) is a list of some commercially-important tree species which occur on the soils in each suitability group.

Column four (4) shows the site class (site index rounded off to the nearest 10-foot interval) for the most important tree species listed in column three.

Column five (5) lists some of the most important tree species which are suitable for planting or direct seeding on the soils in each suitability group.

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY

Southern Piedmont Area				
page 1 of 4				
Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitable for Planting
		Tree Species	Site Class	
(1)	(2)	(3)	(4)	(5)
<u>1w7</u> Soils with very high potential productivity; no serious management problems; suitable for broadleaf and/or needleleaf trees.	<u>Congaree</u> , 0-6% slopes <u>Starr</u> , 0-6% slopes <u>State</u> , 0-7% slopes <u>Toccoa</u> , 0-3% slopes	Black cherry Black walnut Cottonwood Green ash Loblolly pine Shortleaf pine Sugarberry Sweetgum Sycamore Water oaks Yellow-poplar	90 100 110 90 90 80 80 100 90 90 110	Loblolly pine Slash pine Cherrybark oak Cottonwood Sweetgum Sycamore Black walnut Yellow-poplar
<u>1w8</u> Seasonally wet soils with very high potential productivity; moderate equipment restrictions and slight to moderate seedling mortality; suitable for broadleaf and/or needleleaf trees.	<u>Chewacla</u> , 0-6% slopes	Cottonwood Green ash Loblolly pine Red oaks Sugarberry Blackgum Sweetgum Sycamore Water oaks Yellow-poplar	100 100 100 90 80 80 100 90 90 100	Cottonwood Loblolly pine Slash pine <u>1/</u> Sweetgum Sycamore Yellow-poplar Cherrybark oak Eastern white pine <u>1/</u>
<u>1w9</u> Excessively wet soils with very high potential productivity; severe equipment restrictions and moderate to severe seedling mortality; suitable for broadleaf and/or needleleaf trees.	<u>Wehadkee</u> , 0-6% slopes	Cottonwood Green ash Loblolly pine Red maple Sweetgum Sycamore Water oaks White ash Yellow-poplar	90 100 100 90 90 90 90 90 100	Cherrybark oak Cottonwood Green ash Sweetgum Sycamore Loblolly pine Slash pine <u>1/</u> Yellow-poplar
<u>2w8</u> Seasonally wet soils with high productivity; moderate equipment restrictions and slight to moderate seedling mortality; suitable for broadleaf and/or needleleaf trees.	<u>Altavista</u> , 0-10% slopes <u>Augusta</u> , 0-6% slopes <u>Cartecay</u> , 0-6% slopes <u>Worsham</u> , 0-10% slopes	Loblolly pine Sweetgum Yellow-poplar Red oaks White oaks Sycamore	90 90 100 80 80 90	Loblolly pine Slash pine Sweetgum Sycamore Yellow-poplar Cottonwood
<u>2w9</u> Excessively wet soils with high potential productivity; suitable for water-tolerant broadleaf and/or needleleaf trees; severe equipment restrictions and moderate to severe seedling mortality.	<u>Roanoke</u> , 0-2% slopes	Loblolly pine Red maple Sweetgum Water oaks Green ash	90 - 90 90 -	Loblolly pine Sweetgum Sycamore Slash pine Green ash
<u>2s8</u> Sandy soils with high productivity; moderate equipment restrictions and seedling mortality; suitable for broadleaf and/or needleleaf trees.	<u>Buncombe</u> , 0-6% slopes	Cottonwood Black willow Sycamore Sweetgum	100 - 90 90	Cottonwood Sycamore Loblolly pine Slash pine

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1/ Plant slash pine only in the lower Piedmont; plant white pine only in the upper Piedmont.

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY

Southern Piedmont Area page 2 of 4				
Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitable for Planting
		Tree Species	Site Class	
(1)	(2)	(3)	(4)	(5)
<u>3o7</u> Soils with moderately high productivity; no serious management problems; suitable for broadleaf and/or needle-leaf trees.	<u>Alamance</u> , 0-15% slopes	Loblolly pine	80	Loblolly pine
	<u>Appling</u> , 0-15% slopes	Shortleaf pine	70	Slash pine
	<u>Bradley</u> , 0-15% slopes	Red oaks	70-80	Virginia pine
	<u>Cataula</u> , 0-15% slopes	White oaks	70-80	Yellow-poplar
	<u>Cecil</u> , 0-15% slopes	Yellow-poplar	90	White pine
	<u>Davidson</u> , 0-20% slopes	Virginia pine	70+	
	<u>Durham</u> , 0-15% slopes			
	<u>Georgeville</u> , 0-15% slopes			
	<u>Gist</u> , 0-20% slopes			
	<u>Granville</u> , 0-15% slopes			
	<u>Grover</u> , 0-15% slopes			
	<u>Gwinett</u> , 0-15% slopes			
	<u>Herndon</u> , 0-15% slopes			
	<u>Hiwassee</u> , 0-15% slopes			
	<u>Hulett</u> , 0-15% slopes			
	<u>Lockhart</u> , 0-15% slopes			
	<u>Louisburg</u> , 0-15% slopes			
	<u>Madison</u> , 0-15% slopes			
	<u>Masada</u> , 2-10% slopes			
	<u>Mayodan</u> , 2-7% slopes			
	<u>Musella</u> , 6-20% slopes			
	<u>Nason</u> , 0-15% slopes			
	<u>Pacolet</u> , 0-15% slopes			
	<u>Vance</u> , 0-15% slopes			
	<u>Wadesboro</u> , 0-15% slopes			
	<u>Wedowee</u> , 0-15% slopes			
	<u>Wickham</u> , 0-15% slopes			
<u>3r8</u> Soils with moderately high productivity on moderately steep to steep slopes; moderate equipment restrictions and erosion hazard; suitable for broadleaf and/or needleleaf trees.	<u>Appling</u> , 15-40% slopes	Loblolly pine	80	Loblolly pine
	<u>Cataula</u> , 15-25% slopes	Shortleaf pine	70	Slash pine
	<u>Cecil</u> , 15-30% slopes	Yellow-poplar	90	Yellow-poplar
	<u>Georgeville</u> , 15-25% slopes	Red oaks	70-80	Northern red oak
	<u>Grover</u> , 15-40% slopes	White oaks	70-80	White pine
	<u>Gwinett</u> , 15-45% slopes	Virginia pine	70+	Virginia pine
	<u>Lockhart</u> , 15-25% slopes			
	<u>Louisburg</u> , 15-45% slopes			
	<u>Madison</u> , 15-35% slopes			
	<u>Musella</u> , 20-45% slopes			
	<u>Nason</u> , 15-25% slopes			
	<u>Pacolet</u> , 15-40% slopes			
	<u>Wadesboro</u> , 15-25% slopes			
	<u>Wedowee</u> , 15-45% slopes			
<u>3w8</u> Seasonally wet soils with moderately high productivity; moderate equipment restrictions and slight to moderate seedling mortality; suitable for broadleaf and/or needleleaf trees.	<u>Colfax</u> , 0-15% slopes	Loblolly pine	80	Loblolly pine
	<u>Creedmore</u> , 0-20% slopes	Yellow-poplar	90	Slash pine
	<u>Helena</u> , 0-25% slopes	Red oaks	70	Sycamore
		Sweetgum	80	Yellow-poplar
		White oaks	70	Sweetgum
		Shortleaf pine	70	
<u>3x3</u> Stony soils with moderately high productivity; moderate to severe equipment restrictions and slight to moderate erosion hazard; best suited for needleleaf trees.	<u>Louisburg</u> , stony, 0-50% slopes	Loblolly pine	80	Loblolly pine
	<u>Pacolet</u> , stony, 0-60% slopes	Virginia pine	70	Virginia pine
		Red oaks	70	
		White oaks	70	
<u>3s2</u> Sandy soils with moderately high productivity; moderate equipment limitations and seedling mortality; best suited for needleleaf trees.	<u>Molena</u> , 0-20% slopes	Loblolly pine	80	Loblolly pine
		Red oaks	80	Slash pine
		White oaks	70	Longleaf pine

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY

Southern Piedmont Area

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Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitable for Planting
		Tree Species	Site Class	
(1)	(2)	(3)	(4)	(5)
4o1 Soils with moderate productivity and no serious management problems; best suited for needleleaf trees.	<u>Enon</u> , 0-15% slopes <u>Goldston</u> , 0-15% slopes <u>Louisa</u> , 0-15% slopes <u>Mecklenburg</u> , 0-20% slopes <u>Tallapoosa</u> , 0-15% slopes <u>Tatum</u> , 0-15% slopes <u>Wilkes</u> , 0-15% slopes	Loblolly pine Shortleaf pine Virginia pine Red oaks White oaks Yellow-poplar	70 60 60 70 70 80	Loblolly pine Eastern redcedar Slash pine Virginia pine
4r2 Soils with moderate productivity on moderately steep to steep slopes; moderate erosion hazard and equipment restrictions; best suited for needleleaf trees.	<u>Enon</u> , 15-45% slopes <u>Goldston</u> , 15-35% slopes <u>Louisa</u> , 15-35% slopes <u>Tallapoosa</u> , 15-45% slopes <u>Tatum</u> , 15-45% slopes <u>Wilkes</u> , 15-45% slopes	Loblolly pine Shortleaf pine Virginia pine Red oaks White oaks	70 60 60 70 70	Loblolly pine Slash pine Virginia pine Eastern redcedar
4r3 Soils with moderate productivity on very steep slopes; severe erosion hazard and equipment limitations; best suited for needleleaf trees.	<u>Tallapoosa</u> , 45-60% slopes <u>Wilkes</u> , 45-60% slopes	Loblolly pine Shortleaf pine Virginia pine Red oaks White oaks	70 60 60 70 70	Loblolly pine Virginia pine
4c2 Clayey soils with moderate productivity; moderate equipment restrictions and seedling mortality; best suited for needleleaf trees.	<u>Iredell</u> , 0-12% slopes <u>White Store</u> , 0-25% slopes	Loblolly pine Eastern redcedar Shortleaf pine White oak	70 40 60 50	Eastern redcedar Loblolly pine
4c2e Severely eroded soils with moderate productivity; moderate erosion hazard and equipment restrictions; slight to moderate seedling mortality; best suited for needleleaf trees.	<u>Alamance</u> silty clay loam, 2-15% slopes, severely eroded <u>Appling</u> sandy clay loam, 2-15% slopes, severely eroded <u>Cecil</u> clay loam, 2-15% slopes, severely eroded <u>Davidson</u> clay loam, 2-20% slopes, severely eroded <u>Enon</u> clay loam, 2-15% slopes, severely eroded <u>Georgeville</u> silty clay loam, 2-15% slopes, severely eroded <u>Gist</u> sandy clay loam, 2-20% slopes, severely eroded <u>Gwinett</u> clay loam, 2-15% slopes, severely eroded <u>Hiwassee</u> clay loam, 2-15% slopes, severely eroded <u>Hulett</u> clay loam, 2-15% slopes, severely eroded <u>Madison</u> clay loam, 2-15% slopes, severely eroded <u>Mecklenburg</u> clay loam, 2-20% slopes, severely eroded <u>Pacolet</u> clay loam, 2-15% slopes, severely eroded <u>Tatum</u> silty clay loam, 2-15% slopes, severely eroded	Loblolly pine Virginia pine Shortleaf pine Red oaks White oaks	70 60 60 70 60	Loblolly pine Slash pine Virginia pine
4c3e Severely eroded soils on moderately steep to steep slopes; moderate productivity; severe erosion hazard and equipment restrictions; and moderate seedling mortality; best suited to needleleaf trees	<u>Appling</u> sandy clay loam, 15-45% slopes, severely eroded <u>Cecil</u> clay loam, 15-30% slopes, severely eroded <u>Enon</u> clay loam, 15-25% slopes, severely eroded <u>Georgeville</u> clay loam, 15-25% slopes, severely eroded <u>Gwinett</u> clay loam, 15-45% slopes, severely eroded	Loblolly pine Shortleaf pine Virginia pine Red oaks White oaks	70 60 60 70 60	Loblolly pine Virginia pine Slash pine

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY

Southern Piedmont Area
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Woodland Suitability Group (Symbol and Description) (1)	Soils (2)	Productivity		Species Suitable for Planting (5)
		Tree Species (3)	Site Class (4)	
<u>4c3e</u> (continued)	<u>Madison</u> clay loam, 15-35% slopes, severely eroded <u>Pacolet</u> clay loam, 15-40% slopes, severely eroded <u>Tatum</u> silty clay loam, 15-45% slopes, severely eroded			
<u>4x2</u> Stony soils with moderate productivity; moderate equipment limitations; and slight to moderate seedling mortality; best suited for needleleaf trees.	<u>Iredell</u> stony, 0-12% slopes	Loblolly pine Shortleaf pine Longleaf pine Virginia pine	70 60 60 60	Loblolly pine Virginia pine
<u>4f3</u> Gravelly soils with moderate productivity; slight to moderate erosion hazard and equipment restrictions, and moderate to severe seedling mortality; best suited for needleleaf trees.	<u>Musella</u> gravelly, 6-60% slopes	Loblolly pine Virginia pine Shortleaf pine	70 60 60	Loblolly pine Virginia pine
<u>5c3e</u> Severely eroded soils with low productivity; moderate to severe erosion hazard, seedling mortality and equipment restrictions; best suited for needleleaf trees.	<u>Cataula</u> clay loam, 0-25% slopes, severely eroded	Loblolly pine Shortleaf pine Virginia pine	60 50 50	Virginia pine Loblolly pine Eastern redcedar
<u>5w2</u> Seasonally wet soils with low productivity; slight erosion hazard, moderate equipment restrictions, slight seedling mortality; best suited to needleleaf trees.	<u>Gills</u> , 0-10% slopes	Shortleaf pine	43	Eastern redcedar Loblolly pine Virginia pine



